

**Assessment of the Manila Bay Area  
Integrated Information Management System**



# Contents

<b>Introduction</b>	<b>1</b>
<b>Method of assessment</b>	<b>2</b>
<b>Results of assessment</b>	<b>2</b>
Status of IIMS implementation	2
Region 3	2
Region 4A	5
National Capital Region	7
Bataan ICM Program	9
Cavite ICM Program	11
Batangas	13
Environmental Management Bureau	14
Difficulties encountered with the software	14
Summary and recommendations	15
Support to the GNC	17
Approaches to the integration of regional and site databases	18
Dropdown menu	18
Assigning unique record numbers	18
Integration	19
<b>Conclusion</b>	<b>20</b>
Annex 1 Schedule of Assessment	21
Annex 2 List of Persons Met/Key Informants	22
Annex 3 Guide Questions Used During the Focus Group Discussions	25
Annex 4 Status of Data Encoding	26
Annex 5 Proposed Work Plan and Budget on the IIMS support for the GNC	55





## **ASSESSMENT OF THE MANILA BAY AREA IIMS**

### **Introduction**

The Manila Bay Area IIMS database was established during the Phase 2 of PEMSEA under the Manila Bay Environmental Management Project (MBEMP). Each Site Management Office established and maintained its database as a site node. The MBEMP maintained the central node and provided necessary support to the regional offices with assistance from PEMSEA. A web-based IIMS was also established linking the site nodes and the central node to facilitate access and updating of data. The web-based IIMS was hosted by the Environmental Management Bureau.

The applications of IIMS under the MBEMP were support to the activities of the project such as compilation of the Manila Bay Area Environmental Atlas, conduct of the environmental risk assessment, integrated environmental monitoring, sensitivity analysis for oil spill contingency planning, development of the Manila Bay Coastal Strategy, developing of coastal-use zoning and environmental resource valuation.

In 2005, DENR Special Order 315, series of 2005 amended by DENR SO 242, series of 2007 institutionalized the Manila Bay Area Information Network. The Special Order stipulated how IIMS should be phased-in as a regular activity of DENR.

Despite the issuance of the Special Orders, there has been no significant progress made as to the institutionalization of IIMS. In early 2010, the River Basin Coordinating Office with the assistance of PEMSEA organized a training workshop on the reestablishment of IIMS. During that workshop a letter of commitment was signed by the Regional Directors and the RBCO Director indicating their commitments in reestablishing IIMS and providing the necessary support for IIMS sustainability. Plan of action was developed by each office. Equipment and staff were provided to the regional offices to reestablish IIMS.

In September 2011, a workshop was held to identify actions necessary in the consolidation of the Manila Bay Area Database and holding the Module 2 IIMS training. A memorandum from the Chief of Staff and Focal Point for PEMSEA was issued in December 2, 2012 to the concerned offices, instructing them to provide budget, organize a composite teams for IIMS and update their respective databases.

Given all these circumstances and the efforts made by the concerned offices of DENR and ICM sites, this assessment was undertaken from in April and May 2012 (see Annex 1). The purposes of the assessment were:

1. to gauge the status of IIMS operationalization at the three regional offices, ICM Bataan, ICM Cavite and ICM Batangas in preparation for the integration of databases into a consolidated Manila Bay IIMS database and conduct of Module 2 IIMS training;
2. to determine the issues on the operation of IIMS and identify possible solutions in consultation with the concerned offices;

3. to formulate a strategy for integrating the databases from various offices; and
4. to determine how the database can support the Global Foundations for Reducing Nutrient Enrichment and Oxygen Depletion from Land-based Pollution in Support of Global Nutrient Cycle (GNC).

### **Method of assessment**

The assessment involved focus group discussions with IIMS teams, and officials of DENR and ICM sites (see Annex 2); and examination of the databases. The focus group discussions were guided by questions about the operation of IIMS such as staff, facilities, equipment and policies. The guide questions are listed in Annex 3. At the end of the each focus group discussion, issues and possible solutions were identified. Each of the offices laid their commitments which can be supported by their existing budget and staff. The examination of database determined how robust the database is. Each of the sites/SMOs was asked to complete the IIMS status checklist, where in the number of records and fields collected, classified and encoded were noted. From there, the percentage of populated field and table is computed against the applicable tables or fields which were identified in the earlier in the inventory of available data. This determined how many more needed to be collected, and if data are already collected, it how many have been encoded.

All the status checklists of the regions/sites are summarized in Annex 4. The details are contained in the attached CD. These status checklists need to be updated from time to time and can be used to monitor the progress of IIMS operationalization.

An action planning was also undertaken to identify the actions to be taken in response to the issues identified and concerns of the offices.

### **Results of assessment**

The following discusses the status of IIMS operations in terms of staff, facilities, data and management support in each of the sites. It consists of three parts, namely, status of IIMS implementation, approaches in integrating the databases and support to the GNC.

### ***Status of IIMS implementation***

#### **Region 3**

##### ***Staff***

The Region 3 database is housed at the SMO-3 Office. The SMO-3 has four staff, one permanent and three contractual. All of the four staff contributes to IIMS, with defined assignments. One staff is assigned full-time with IIMS. The two of the staff are still grappling with the system, and need to be oriented with IIMS operation.

Turn-over of staff is one of the issues experienced in SMO-3, particularly in the case of contractual employees. DENR could not provide security of tenure to staff due to moratorium imposed on

hiring new employees pending the approval of personnel rationalization of national agencies. Only casual and contractual employees are being hired. Once these employees left DENR, it would be lost to DENR especially when they are provided with necessary training and skills.

SMO-3 conducted a training program, which was attended by representatives of PENRO, DENR offices, national government agencies and LGUs. The national government agencies were BFAR, DILG, and DPWH. Most of those who attended would be members of IIMS composite team in the region. The composite team however, has not been formally established or organized. Since IIMS has not been established at the PENROs, except for Bataan, the PENRO's responsibility is limited to data gathering. All screening, classifying and encoding work are done by SMO-3 staff. Because of limited technical expertise, SMO-3 staff experienced difficulty in classifying data.

### Facilities

The SMO-3 has a dedicated computer for IIMS. All encoded data from other computers are consolidated in that computer. There is also an Internet access in the office. Other equipment needed such as printer and scanner are also available. At the PENROs, there are no computers allocated for IIMS.

### Data

Database is assessed based on the checklist, which was filled-in in 2010. The checklist, which should have been validated and updated as agreed during the training course in 2010 has not been updated or used to determine how much more data need to be collected. In order to determine the available data and the tables applicable in Region 3, an estimate was undertaken based on the experiences of other regions and the data in the old IIMS database. There are 219 tables that are applicable for Region 3, out of these, only 46 was populated, which is about 21.3%. There are 11,863 records in the database. Some tables are sparsely populated. Sometimes only the key fields are filled-in due to lack of data or data are not collected. For instance, population census data account for the highest number of record in the database. But it was noted that few fields were filled-in, mostly on the total number of population.

The Region 3 database does not include database of Bataan. Bataan has its own database but can be easily integrated into the Region 3 database. The details of the Bataan database are discussed in the section on Bataan ICM Program.

The local government units have not been involved in this undertaking, except for the Provinces of Bataan and Pampanga. At present, LGUs are only sources of data and have no involvement in the development of the databases. This may have caused the difficulty in accessing the data from these offices.

Most of the data in the Region 3 database are those that can be accessed from DENR. Among them are data on manufacturing/business establishments and their emissions. River and offshore monitoring, which are available from EMB have not been gathered. Others such as those of governance data, which are among the easiest to access has not been collected.

There is a need to determine priorities on data to be collected and encoded. Completing and updating the data inventory is needed to guide the team in data collection and tracking their

progress. More attention is required in the classification of data. Encoders experienced difficulties in doing this step since data classification require expertise of technical staff.

The data checklist as to the status of data available, collected, screened and encoded is included in the CD\data checklist\region 3.

Management support

Region 3 is among the regions that expressed interest in using IIMS as its regional database. With the establishment of IIMS in Aurora and Zambales, Region 3 is the first to adopt IIMS among the regional offices. This move can only be sustained if enough management and technical support is provided. At present, the budget used for the operation of IIMS in the three sites is coming from projects. At this point, the regional office should be considering how to operate IIMS at the regional level, such as integration of the databases of the three sites, transition phase from project to regular function, budget, unit to manage IIMS and dedicated staff.

Next steps

To address the issues identified such as those related to staff, data and policies, SMO-3 and Bataan identified necessary steps to populate the database and make it ready for integration with other regions, and support the GNC. The following are the steps to be undertaken:

<b>Activities</b>	<b>Schedule</b>	<b>Responsible units</b>
Recruitment of new staff/data collectors	May-June	DENR Region 3; Bataan ICMP
Establishment of Composite team	May 21-June 30	DENR Region 3; Bataan ICMP
Orientation/reorientation of staff	May 16-17	DENR Region 3
Integration of IIMS database		
Inventory of data available/ collected/ screened and encoded	April 27	DENR Region 3
Integration of database from Bataan	April 24-May 30	DENR Region 3, Bataan ICMP
Integration of database with other regions	June 1-30 (tentative)	PEMSEA, DENR Region 3, Bataan ICMP
Module 2 training	TBA	PEMSEA
Support to the GNC		
Inception workshop for the GNC/IIMS and SOC	TBA	PEMSEA, DENR, Regional Offices
Collection and screening of data	Continuous until December	Region 3, PENROs
Encoding of data	Continuous until December	Region 3
Establishment of IIMS at LGUs	TBA	PEMSEA and Region 3, LGUs concerned
Monitoring of activities	At least once a month until	PEMSEA and Region 3

Activities	Schedule	Responsible units
Recruitment of new staff/data collectors	May-June	DENR Region 3; Bataan ICMP
Establishment of Composite team	May 21-June 30	DENR Region 3; Bataan ICMP
Orientation/reorientation of staff	May 16-17	DENR Region 3
Integration of IIMS database		
	Dec 2012	

#### **Region 4A**

##### *Staff*

The IIMS database is being housed and maintained by the Coastal and Marine Management Office/SMO-4. CMMD has three permanent staff, and five contractual/casual staff. While all contribute to IIMS, a focal person is assigned to coordinate the operation of the IIMS, however not on a full time basis. She also caters for mapping and other technical needs of the office. She is assisted by an IT staff on a full-time basis.

In 2010, the Regional Office through Special Order 161, series of 2000, established the IIMS, and the composite team representing various sectors and PENROs of the DENR, including Batangas and Quezon. The composite team has not been active, except in providing training for co-staff and for LGUs. Most members of the composite team have priorities other than IIMS. In terms of collecting, screening, classifying and encoding data, the staff of SMO-4 did most of the work.

Issues with regard to staff include the following:

- a. Lack of staff on permanent status, which may result in turn-over of staff and endanger the sustainability of the system. Since DENR is constrained to hire new staff, one of those permanent staff assigned in CMMD should play a major role, preferably as the head of IIMS.
- b. The composite team has not been active to support the operation of IIMS. There is a need to reconstitute and reactivate the Team. The team should also hold regular meetings/activities to discuss issues and activities, and how they can contribute to IIMS operation.
- c. No staff from the Environmental Management Bureau is familiar with IIMS. An orientation on IIMS is needed for the staff to appreciate the benefits of IIMS and get familiarized with the system. Being part of the IIMS composite team EMB should play a major role in IIMS operation. There should be mechanisms how the data from EMB be provided to CMMD.

##### *Equipment*

There is no dedicated computer for IIMS database. The computer used also contains GIS databases and other important documents of the regional offices. A new computer will be purchased to be assigned for IIMS as directed by the Regional Executive Director.

### Data

The Region 4 database contains 11,468 records, mostly on Cavite. Comparing the populated tables against the applicable tables, Region 4 has accomplished 29.3%. Data from Cavite ICM have not been incorporated into the database. There are no data from Rizal and Laguna, except for census data that were downloaded from Internet. Data from other agencies are not yet collected. Some tables are partly populated. Some contain only the key fields or just some few fields. These are due to non-existent of data or data are not yet collected. In order to determine which fields or parameters that can be populated or with data available, the SMO-4 will perform an inventory of data available not only from DENR but with possible sources.

Difficulty in accessing data has been hampering the team from completing the database even within DENR offices. Providing temporary facilities and staff at concerned offices in order to facilitate collection and encoding proved to be unsustainable as experienced by the Regional Office. Once the contract of temporary staff is completed, so with the system. One of the solutions identified was the strengthening the composite team.

Local governments and other agencies have not yet been involved in IIMS development. Their willingness to provide data and to use IIMS rests upon their understanding about the system.

### Management support

Region 4 recognized the importance of IIMS in its operations, not only for Manila Bay but also for other areas. The presence of other systems in Manila Bay that are similar to IIMS poses confusion to the Regional Office. It was suggested that a clarification has to be made by the DENR Central Office as to the relationship or linkage of the other systems with IIMS. At present, budget for the operation and maintenance of IIMS are taken from MBCO. If IIMS is indeed to be used as the regional database, during the coming years, regular appropriation for its sustainability should be allocated.

### Next steps

In addressing the issues identified above, the following are the steps identified:

<b>Activities</b>	<b>Schedule</b>	<b>Responsible units</b>	<b>Resources needed</b>
<b>Integration of IIMS database</b>			
Inventory of data available/ collected/ screened and encoded	June 2012	CMMD/MBCO, PENROs, EMB, focal person per sector	
Recruitment/assignment of staff – Rizal, EMB-4A, Batangas, Laguna, Cavite, Quezon	May 2012---	Respective offices	Budget from respective offices
Strengthening of IIMS in Rizal, Laguna, Quezon, Batangas, Cavite and EMB-4A	May 2012---	Respective offices, CMMD	Software Equipment-existing

<b>Activities</b>	<b>Schedule</b>	<b>Responsible units</b>	<b>Resources needed</b>
Retraining/training of staff (EMB, Rizal)	June 7-8, 2012	EMB-4A, Rizal, CMMD	Budget: EMB4A Venue and foods: EMB Training Kit: CMMD
Integration of database from LGUs and other offices	Cavite – Aril 24- May 10 Batangas- TBA	PEMSEA, Batangas, Cavite, CMMD and respective PENROs	Budget: respective offices
Integration of database with other regions	TBA	CMMD-Region 3,4A and NCR, PEMSEA	Budget: respective offices
Updating/reconstituting the Region 4A IIMS Team	May 4, 2012	CMMD	
Regular meeting of IIMS Team	Quarterly (last week of a qtr.)	CMMD, respective members	CMMD
Module 2 training	MBA-(TBA) Region4A (Reecho) - TBA	All PENROs, EMB, focal persons/sector, planning, PEMSEA	PEMSEA CMMD
Support to nutrient reduction project			
Inception workshop	TBA	Respective offices	PEMSEA, respective offices
Collection and screening of data	May-Nov	Respective offices	PEMSEA, respective offices
Encoding of data	May-Nov	Respective offices	PEMSEA, respective offices
Coordination with LLDA	May-Nov	Respective offices	PEMSEA, respective offices
Monitoring of activities	May-Dec	Respective offices, CMMD, PEMSEA, planning, LGUs	Respective offices

### **National Capital Region**

#### *Staff*

The IIMS database of the National Capital Region (NCR) is maintained by SMO-NCR. There are three staff (one permanent staff and two contractual staff) assigned to work with IIMS on a part-time basis. The permanent staff, who is newly assigned to the team, has been part of the IIMS composite team. His assignment to the IIMS team would address some of the issues on sustainability of the system. The two contractual employees are assigned with other activities of the Manila Bay project, including the provision of assistance in installing the Manila Bay information system on informal settlement, households, environment and rivers (ISHER) at LGUs.

The IIMS composite team, which was formed in 2010 has not been active. The members of the composite team would provide technical inputs including the provision of data that have been

classified and encoded into the IIMS software to the SMO-NCR. Some of the members of team provided the necessary inputs to SMO-NCR, while others did not.

### Equipment

There is one computer dedicated for IIMS. Computers were also provided to the various sectors with IIMS installed in it so that members of the composite team can encode data and provide the encoded data to the SMO-NCR for integration into the NCR database.

### Data

There are about 169 tables are applicable to NCR. As of April, 28.9% or 49 of the applicable tables had been populated. The database has 21,050 records covering data from DENR, NSO and two cities.

There are two major problems with regard to data:

- a. Access of data outside DENR – Accessing data from national agencies and LGUs is done through formal channels such as letter requests to the concerned agencies. Attached to the letter request are matrices where data can be tabulated. Only few agencies responded to the request, or sometimes, agencies do not fill-in the form, instead, they provide reports. Data from the Laguna Lake Development Authority have not been accessed or requested.

As suggested by the RED, the team has to make another strategy in accessing data outside DENR. For instance, in Region 4, the Team conducted a workshop involving the data providers and users to orient them about IIMS so that they will understand the benefits of establishing IIMS.

Another strategy is to demonstrate the usefulness of IIMS in LGUs, for instance. In Navotas, the City Government and DENR are developing the integrated land-and sea-use zoning of the City. By demonstrating how IIMS can facilitate the process, other LGUs might see its benefits.

The team also indicated its plan to table IIMS in the next meeting of the Site Coordinating Committee (SCC) and seek direction from the SCC the best approach in involving the concerned agencies, including provision of data required in IIMS.

- b. Screening and classifying gathered data – If the agencies or sectors from DENR tabulated the data using the forms from SMO-NCR, or if the technical staff classified and encoded data into the computer provided, there would have been no problem. When documents or reports are provided, the team often faced with problem on how classify the data due to lack of technical expertise. Assignment of a technical staff to the team would help solve this problem.

### Management support

Budget for IIMS usually comes from Manila Bay but since IIMS is not one of the priorities of Manila Bay, there is no budget allocated for 2012 and 2013. In the memorandum dated 02 December 2011 from the Chief of Staff and PEMSEA Focal Point, she instructed the concerned offices to, among

others, allocate necessary budget for IIMS sustainability. According to the RED and RTD for PAWCZM, the memorandum was not received by the NCR. Allocating budget out of the regular fund of NCR is also difficult at this point in time as budget has been allocated to specific functions of the regional office. The regional office can only commit the existing facilities, time of one permanent/technical staff and two contractual staff but on a part-time basis, and the support from management.

Next steps

Recognizing the issues identified and the support to the GNC, the Team developed a plan of action as indicated in the following table.

<b>Activities</b>	<b>Schedule</b>	<b>Responsible units</b>	<b>Resources needed</b>
<b>Integration of IIMS database</b>			
Transfer of existing database to new IIMS	May 7-18, 2012	SMO-NCR	SMO-NCR
Integration of database with other regions	June 2012	SMO-NCR,PEMSEA	SMO-NCR,PEMSEA
<b>Re-orientation of EMB-NCR staff</b>	TBA	EMB-NCR,SMO-NCR	EMB-NCR/SMO-NCR
<b>Module 2 training</b>	TBA	PEMSEA, SMO-NCR	PEMSEA
<b>Support to GNC</b>			
Inception workshop	TBA	PEMSEA	PEMSEA
Collection and screening of data	July - November 2012	EMB-NCR/SMO-NCR	EMB-NCR/SMO-NCR
Encoding of data	July - November 2012	EMB-NCR/SMO-NCR	EMB-NCR/SMO-NCR
Coordination with LLDA	July - November 2012	SMO-NCR	SMO-NCR
<b>IIMS orientation for LGUs</b>	May 30, 2012 (tentative date)	SMO-NCR	SMO-NCR
<b>Monitoring of activities</b>	May – December 2012	SMO-NCR	SMO-NCR

**Bataan ICM Program**

IIMS was tested using Bataan, and Bataan was among the first sites of PEMSEA that have established IIMS. It should be noted that a case study on IIMS focused on Bataan. The case study suggested to institutionalize IIMS in the Provincial Government and adopting it as a database platform for the province.

Staff

The Bataan IIMS database is housed at the Project Management Office of Bataan ICM Program. Only one staff is assigned to operate IIMS and coordinate with concerned agencies on a part-time basis. The staff is also laden with other technical and administrative functions

It may be recalled that IIMS training program on establishment and query system was conducted in 2008 for IIMS Team of the Provincial Government. One of the outputs of the training workshop was an action plan indicating the necessary steps to establish IIMS as a provincial database. The work plan indicated that staff, equipment and necessary support would be provided and tasks of various IIMS team members were indicated in terms of data gathering, screening and encoding. At present, there is only one person working for IIMS, who is being assisted by some PMO staff, if they have time. The IIMS Team was not organized. DENR-PENRO Bataan focal person for Manila Bay has been helping the PMO in data gathering and classification of data. She has provided data on biological resources. She also realized that a more effective way of coordinating the data sources and users would facilitate the operation and ensure the sustainability of IIMS.

#### Equipment

One computer is dedicated for IIMS use. Facilities such as printer, scanner and Internet access are also available for IIMS use.

#### Data

Based on the inventory of data undertaken in 2010, there are 139 tables applicable to Bataan. At the time of this assessment, the number of tables that have been populated was only 20 or 14.38%. Some of the records contain only the key fields hence, the tables are sparsely populated. Data available from the municipal or city governments have not been collected. Data on biological resources such as those on mangrove and planktons were provided by DENR.

The PMO recognized that IIMS development requires inputs from various sectors, not only from the Provincial Government but also from national agencies and municipal and city governments. One of the steps undertaken by PMO was to request data from various offices of the municipal/city governments but there was no response. This could be attributable to lack of understanding of the usefulness of IIMS in ICM and to their offices or lack of staff to attend to the request. A more effective way of accessing data from the data holders should be employed. By involving the data holders as part of the team or process of establishing the IIMS can create sense of ownership among them, hence there is a greater chance of sharing not only data but also resources.

#### Management support

Every year, budget has been allocated for IIMS. With the accomplishment 14% for about four years since the training in 2008, a more effective strategy should be implemented. Coordination with concerned agencies and tapping the technical expertise of the various departments of the Provincial Government and national and municipal agencies need to be effective in order to bring back the progress of IIMS on track.

There is a need to redefine the direction of IIMS as to how it would be applied in ICM and local governance.

## **Cavite ICM Program**

### **Staff**

IIMS database in Cavite is housed at the ICM Section of the PG-ENRO. Two staff are assigned in the operationalization of IIMS, one works full-time. The ICM Section is assisted by some staff from the Land Management Section in data collection and classification.

The fulltime staff was trained on IIMS by SMO Region 4, together with the other representatives of the LGUs. The PG-ENRO conducted orientation with the staff of the Land Management Section. Due to the long gap between the training and the actual operations of IIMS, the staff needs to review the topics given during the training course, including the functionalities of IIMS.

Arrangement as to the delineation of work between the PG-ENRO and PENRO was also agreed upon. Both PG-ENRO and PENRO will gather data from the assigned cities/municipalities. Encoding of data and maintenance of IIMS is assigned to PG-ENRO. SMO Region 4 provides technical assistance in systems trouble shooting.

### **Facilities**

Two dedicated computers are reserved for IIMS. One of these is the computer that was given by PEMSEA to PG-ENRO. However, since the computer is already outdated, PG-ENRO should consider acquiring new one. The other is new and enough to host the IIMS database. Printer, scanner and other facilities are also available but shared with other functions of the ICM Section.

### **Data**

Based on the inventory of data done in 2010, 27.37% of the tables applicable to Cavite had been populated. It only covers five of the 23 municipalities of Cavite and contains 1,416 records. There are 309 records that are yet to be encoded into the system. Issues on data include difficulty of accessing data from the municipalities which may be attributable to too many requests from PG-ENRO and PENRO, and lack of staff to gather data. Uncoordinated efforts among PG-ENRO and ENRO may also contribute to ineffective data gathering. Staff assigned to IIMS had difficulty screening and classifying of data due to lack of technical expertise. The Land Management Section has been helping out the IIMS team but only limited to the expertise of the unit.

### **Budget**

As part of the regular function of the ICM Section, IIMS has its own budget allocation. Aside from the salaries of the staff involved, an operational budget of P80,000 is allocated for IIMS in 2012. This covers office supplies, data collection, surveys, if required, and training. Additional budget can be sourced from the total budget of ICM, if required.

### **Next steps**

Among the actions to be undertaken in order to improve the operations of IIMS include:

- a. Coordinate with PENRO/CMMD to develop strategies to collect data from the cities/municipalities;
- b. Involve the other sections of PG-ENRO in data gathering, screening and classifications;
- c. Collect, screen, classify and encode data;
- d. Become a member of the Region 4A IIMS composite team; and
- e. Transfer the existing database to the new IIMS version with assistance from SMO-4.

An action plan is proposed incorporating the abovementioned actions and also to integrate the Cavite IIMS with that of the SMO-4. It is also suggested that SMO-4 provides necessary technical assistance to PG-ENRO in terms of trouble shooting the IIMS.

#### Action plan

Activities	Schedule	Responsible units	Source of budget/resources
Integration of IIMS database			
Inventory of data available/ collected/ screened and encoded	May 2012	PG-ENRO, CMMD/PENRO	Respective offices
Strengthening of IIMS in Cavite  Coordination with municipalities/cities and PENRO  Membership with the IIMS Team of R4a	April -Dec	PG-ENRO, CMMD/PENRO	Respective offices
Orientation/training of staff of other PG-ENRO units	July 2012	ICM	ICM Section
Integration of DENR and PG-ENRO database	Initial -April 26-May 10 Regular – monthly integration of database (CMMD/PENRO and PG-ENRO)	CMMD, PG-ENRO, PENRO, PEMSEA (if needed)	Respective offices
Integration of database with other regions	TBA	CMMD-Region 3,4A and NCR PEMSEA	PEMSEA; ICM section
Regular meeting of IIMS Team	Quarterly (last week of a qtr.)	CMMD, respective members	CMMD
Module 2 training	MBA-June 2012 (3	All PENROs, EMB,	PEMSEA

Activities	Schedule	Responsible units	Source of budget/resources
	days) Region4A - TBA	focal persons/sector, planning, PEMSEA	CMMD
Support to nutrient reduction project			
Inception workshop	TBA	Respective offices	PEMSEA, respective offices
Collection, screening classification of data  <ul style="list-style-type: none"> <li>• Coastal municipalities/cities, Trece Martires, Gen. Trias, Camona – PG-ENRO</li> <li>• Magallanes, Gen Aguinardo, Alfonso, Indang, Mendez, Tagaytay, Amadeo, Silang, GMA, Dasmariñas, Imus - CMMD/PENRO</li> </ul>	May-Nov	Respective offices	Respective offices
Encoding of data	May-Nov	ICM section	ICM section
Monitoring of activities	May-Dec	Respective offices, CMMD, PEMSEA, planning, LGUs	Respective offices

## **Batangas**

### *Staff*

There is only one staff assigned to IIMS. Aside from IIMS, the staff is also assigned with other technical and administrative functions. The primary problem in IIMS operation is the lack of staff to gather, classify and encode data. Two staff from PG-ENRO were trained by the SMO-4A on IIMS in 2011. These two can be tapped as part of the IIMS team.

The ICM/planning section of PG-ENRO proposes to reconstitute an IIMS team to include staff from the sections of PG-ENRO, and other departments. As members, they will also be responsible to gather, classify and encode data on their sectors. In order to get them involved, training of staff is required. It was also proposed that if training of staff would be undertaken, the number of days be extended to five, instead of three. This will cover the encoding of actual data and transfer of the old IIMS database into the new system.

### Facilities

A new computer will be acquired for IIMS by the PG-ENRO. The computer provided by PEMSEA is no longer working.

### Data

The database of Batangas ICM contains 2006 records. About 27.66% of the applicable tables has been populated as of 2007. Data for screening and classification have been collected since 2008. Since there is only one person assigned, she cannot cope with the updating of the system. The PG-ENRO hopes that if the IIMS team will be revived or reconstituted, these data will be processed and encoded into the IIMS.

DENR PENRO has also data that can be encoded into the IIMS. Roles and responsibilities of the PG-ENRO and PENRO in terms of operationalization of IIMS need to be clarified.

### Management support

ICM has a budget coming from regular fund. The Provincial Government has been providing annual budget (P500,000) for the operation of ICM and the Batangas Environmental Protection Council. Expenses for IIMS can be sourced from the regular budget of ICM, including conduct of training, supplies, data gathering expenses and facilities. For instance, in the proposed training course, the PG-ENRO can shoulder the expenses on materials, venue and food.

### **Environmental Management Bureau**

The Environmental Management Bureau has its information management systems based on its mandates, namely, water, air, hazardous wastes, solid wastes, EIA. While these areas have separate systems, they are integrated through the EMB information dash board. The management can access the dash board providing the necessary information about the situation in a given region (e.g., region). All data encoded into the various systems can be accessed through the Internet but limited to EMB. Access by outsiders can be done through formal requests.

As to the linkage between IIMS and the EMB system, the MISD suggested that a link be developed to facilitate access of data from the EMB portal.

### **Difficulties encountered with the software**

Most of the difficulties or bugs encountered with the software were already addressed in the new IIMS version. It was observed by the sites that there is a difference of performance of the system with various operating systems. For instance, in Windows XP, it is more difficult to trouble shoot the software compared with Windows 7. Some data encoded in Windows XP home edition, when transferred to computers with Windows 7, are missing particularly with industry profile (polindu). Using Windows starter poses some problem when appending data. These problems need to be evaluated and given solutions.

The system is tested using Windows XP professional, Windows Vista Home premium and Windows 7 home premium. It is suggested to compare the differences so that the best one is recommended to the user.

The system prompts error when there are violations committed by the user. It was suggested that a list of these error be generated and corresponding solutions should be provided. This can be part of the manual. There is also a suggestion to identify the key fields in the table to facilitate encoding.

### **Summary and recommendations**

As indicated in the previous discussions, the status of IIMS database in the three regional offices and sites is far from satisfactory. It should be noted that the three regional offices and the ICM sites have exerted efforts out of their limited resources to operationalize IIMS.

Among the concerns needing attention are as follows:

a. Lack of staff

There is a lack of staff to gather data and populate the system, and lack of technical expertise to screen and classify data. There is frequent turn-over of staff due to the status of employment of those who are assigned with IIMS. This is compounded by lack of transition between the incumbent and the new staff, hence continuity of operation is sacrificed. The composite teams that should have provided technical supports have not sustained its operation, both at the SMOs and ICM sites. It is suggested that composite teams be revived and commitment from them and their offices should be ensured.

Training of staff has been conducted by those who have undergone the training programs, but modified the training module in accordance with the availability of the trainers and the trainees and budget of the offices. Sometimes, the results were sacrificed such as the skills that should be developed were lacking. The importance of the three-day training course and the corresponding skills that should be developed for each steps, lectures and exercises in each day of the training course were not given importance. In order to ensure the quality of training given, PEMSEA need to accredit those who could provide the training program and provide them trainers training.

b. Data access

Due to lack of staff and time to gather data, only data accessed were those from DENR or provincial offices or own offices of the team members. Access of data from other national or local government offices has not been explored or undertaken. If there are strategies employed to ask data from the other offices, these have not been effective. This is due, may be to the lack of understanding as to the usefulness and benefits of IIMS to the data holders and users.

Data providers and users should be involved early on the process of establishing IIMS. They should understand the usefulness of the system and how they benefit from it. They should not be only considered as source of data but among those who established the system. Sense of ownership should be created among the stakeholders.

Access of data can be facilitated through the existing coordinating committees but as these has not been tapped. It was noted that reports were presented as to the status of IIMS being maintained or updated, but the real score on access of data from agencies and stakeholders were not presented, thus solutions has not been identified collectively by these coordinating committees.

c. Policy directions

Special Order 315, series of 2005, amended by Special Order 270 series of 2007 and Memorandum Order of the Chief of Staff and PEMSEA Focal Point on December 2, 2011 spell out the direction of DENR with regards to IIMS.

The special orders provided steps on phasing in of IIMS from project-base into the regular function of DENR at the three regional offices and DENR Central Office. Eight years after the first special order was issues, there has been no progress, except to have IIMS maintained at SMOs and continue to receive funds from Manila Bay as maybe available.

The Memorandum of the Chief of Staff and Focal Point of PEMSEA, was not received, as claimed by the three regional offices. Hence, funding for IIMS in 2012 and 2013 was not included. Funds used are those from Manila Bay and portion of the CMMD, if available.

At present, there is no unit at DENR Central Office that can provide guidance to the regional offices with regards to IIMS or a unit that will consolidate the databases of the regional offices. The Manila Bay Coordinating Office is no longer keen with IIMS and actually using different system. While Regions 3 and 4 indicated that IIMS will be used as the database of the region, a policy direction from the Central Office is needed as to clarify the linkage of IIMS and the DENR's ISP and with the other systems being used.

Since Region 3 has IIMS in all the provinces it covers, guidance on how to maintain and integrate the databases of Manila Bay, Zambales and Aurora should be given by PEMSEA. At present, there are no discussions on who among the DENR units will house the database, budget requirements and how the Regional Office will apply it for its day-to-day operations.

For Region 4A, it should also look ways to integrate databases from the provinces outside Manila Bay like Quezon and Batangas. There is a need to delineate clear responsibilities between the ICM sites and PENROS, and recognize inputs from these offices.

- d. For the Bataan ICM Program, it may consider a new direction for IIMS if it will be used as the Province's database platform. A new strategy involving the municipalities/city should be developed and implemented soon, including the formation of a functional composite team.
- e. The Cavite and Batangas ICM need technical support both from CMMD-Region4A and PEMSEA in order to sustain IIMS in their respective sites. There is a need to reconstitute the IIMS Team in Batangas and provide them the necessary skills needed to operationalize IIMS.
- f. Protocols and standardized numbering of records

In order to integrate the databases into a Manila Bay area database, a standard numbering of record should be developed in order to avoid duplication and error in data encoding; and identify common values of dropdown menus. This is discussed in the approaches for integration.

Protocols have not been practiced as indicated in SO 315. There might be a need to review the protocols and developed an applicable one. This protocol can facilitate the various processes in data storage and information dissemination.

g. Monitoring of the progress of IIMS and the action plans

As part of the monitoring process of DENR, the SMOs submit the status of IIMS at to the Undersecretary for Field Operations. After the submission, the reports are not validated and evaluated so that issues encountered are given solutions. With regard to the ICM sites, progress are reported to the Program Coordinating Committees and like the case of DENR, they are not also validated and evaluated.

It should be noted that there are action plans formulated during training courses. As observed, seldom these plans are approved or monitored. It is suggested that DENR, the ICM sites and PEMSEA form a monitoring team to regularly monitor the progress of implementation.

h. Compare the performance of IIMS in various operating systems, including Windows XP (home and professional), Windows Vista (home and professional), Windows 7 (home and professional), and Windows starter so that the best one can be recommended to users.

***Support to the GNC***

To support the GNC, there is a need to integrate the database of each regional offices and ICM site into one Manila Bay database, and update it regularly until the necessary available data are encoded. There is a need to identify the data required by the project so that these can be prioritized in data collection and encoding.

Ammonia, nitrate and phosphate in rivers and Manila Bay offshore are being monitored by EMB since the January 2012. Parameters such as BOD, TSS, copper, cadmium, lead, zinc, nickel, DO, pH, temperature, total and fecal coliforms are being monitored. Monitoring data from 2005 to 2011 are available and can be accessed from EMB regional offices and EMB Central Office.

Nutrient in soil (nitrogen, phosphorus and potassium) are available at DENR Forestry Sector in Region 3 and CMMD in Region 4A in one-time observation during the characterization of watersheds. Data at the peak, mid and lowest points were observed during that one-time measurement. River flows are also included in the characterization. It should be noted, however that not all watershed/sub-watershed in Pampanga River Basin have been characterized. Data on air pollution are also available at EMB. Data on nutrients on soil from the Department of Agriculture and other sources need to be assessed but IIMS cannot capture those parameters at present. River

flows from the Bureau of Research and Standards are also available but not all rivers are being observed.

LLDA has also monitoring data. There is a need to determine the data available that can be used for the GNC.

### ***Approaches to the integration of regional and site databases***

Integrating the five databases from the three SMOs and two ICM sites, and the old Manila Bay database entails setting of common dropdown menus, data aggregation, and assigning unique record numbers for each table.

#### **Dropdown menu**

Dropdown menu with values used in the Philippines need to be encoded into the IIMS first before integration is made. These dropdown menus include manufacturing type using PSIC, type of hazardous waste, solid waste, type of hazards and others that may be found necessary to standardize. Once this is completed, the system is ready to integrate the various databases.

#### **Assigning unique record numbers**

In order to avoid duplication of values and committing violation errors when integrating the databases, there is a need to assign unique values for each record in each table. For provinces, municipalities and barangays, it was agreed during the workshop in September 2011 that the geocode will be used as record numbers. Numbers of the records in other tables should also follow that system.

The geocode consists of the following:

First 2 digits (including zero) – region  
Next 2 digits- province/district for NCR  
Next 2 digits – municipality/city  
Next 3-digits -barangay

If the data aggregation is at the barangay level like census, the record number is :Geocode + record no, which may start at 1.

Example: Record number of census in Barangay 1, Caloocan

First record – 137501001+1>> 1375010011  
Second record – 137501001+2>> 1375010012  
10<sup>th</sup> record – 137501001+10>> 13750100110  
100<sup>th</sup> record – 137501001+100>> 137501001100

This means that consecutive numbering of records starts after the barangay geocode.

If the data aggregation is at the municipal level, the record number would be the first six digits of geocode of the municipality+ record number.

Example: 137501 +1  
First record – 137501+1>> 1375011  
2<sup>nd</sup> record – 137501+2>> 1375012  
3<sup>rd</sup> record – 137501+3>> 1375013  
10<sup>th</sup> record – 137501+10>> 13750110  
100<sup>th</sup> record- 137501>> 137501100

Consecutive number of records starts after the first six digits of the geocode.

If the data aggregation is for province, the geocode would be first 4 digits of the geocode+ record number.

Example: Record number of poverty incidence of Bataan

First record – 0308+1>>03081 or 3081  
2<sup>nd</sup> record – 0308+2>>03082 or 3082  
10<sup>th</sup> record- 0308+10>>030810 or 30810  
100<sup>th</sup> record-0308+100>>0308100 Or 308100

For watershed and bodies of water, the record number would follow data aggregation for province.

If the data aggregation is at site level, use the same system as that of the province. This will facilitate integration and avoid confusion as to the linkages of data of a certain table to its parent table.

### **Integration**

Integration will be undertaken in two steps. The first will be the adjustment the record numbers of the old and existing databases according to the numbering system, and reclassification of records based on the new drop down values such as manufacturing types, hazard types and wastes types. Since IIMS is a relational database, all linking fields between the records and their respective parent tables will be modified appropriately. A 3-day workshop will be conducted for the sites to adjust the numbers of the records and reclassify records based on the new values of the dropdown menus. At the end of this workshop, it is expected that databases from the regions and sites will be ready for integration into the Manila Bay area database

The second step will be the integration of all databases into a unified database. All .csv files will be imported into an IIMS server set-up at PEMSEA. The IIMS\_BLANK.GDB will be renamed into IIMS\_MBA.GDB, and will be installed into the server. Each of the regions and site will be allotted a day to import their data into the server.

Once the database has been integrated, it will be provided to the SMOs and ICM sites for updating. They should follow the numbering system of records

The proposed workplan and budget for integrating the IIMS database and support to the GNC is presented in Annex 5.

## **Conclusion**

The assessment of the Manila Bay database provided information on the actual situation of IIMS operationalization at the regional offices and the site. With this information, the SMOs and ICM sites can improve their strategies to sustain IIMS. For PEMSEA, it will be the basis for providing necessary technical assistance so that the sites can attain the goal of using IIMS as a decision support system in their respective areas.

The results of the assessment call for new direction and effective strategies. For instance, it will be a challenge to involve the stakeholders (data holders and users) in the establishment of IIMS. It will require effective partnerships among the agencies in the national and local governments, research institutions and private entities, as needed. For those offices that will adopt the system as their database platform, it means providing the necessary support such as budget, facilities and staff out of their regular resources. There is a need to phase in the system from project-based to a regular function as part of its sustainability.

While everybody recognized that information system like IIMS facilitates well-informed decision making, in the Manila Bay Area and in Batangas, the usefulness of IIMS has not been fully optimized. Its benefits can only be realized if its operationalization is well supported and data are shared among stakeholders. The challenge of attaining this does not rest in one entity but in a collective effort by those who will be using the system.

**Schedule of Assessment**

<b>Place</b>	<b>Date</b>
Region 3	April 17-18
Bataan	April 19
Region 4	April 23-24
Cavite	April 25
Batangas	April 26
NCR	May 2-3
EMB Central office	May 4

### List of Persons Met/Key Informants

#### Region 3

Ricardo Calderon  
Regional Executive Officer

Ma. Carmina Canua  
FRDD

Arturo Salazar  
RTD for PAWCZM

Hubert Lee Evangelista  
EMS I

Cynde Pagador  
SMO Region 3

Cyrel Lachica  
SMO Region 3

Assistant Head  
Planning and Statistical Division  
EMB

Jhun Barit  
SMO Region 3

Miguela Ramirez  
SEMS, PAWD  
PENRO Bataan

Apollo Cerudo  
SMO Region 3

Shiela Munoz  
SMO Region 3

Perlita Mulato  
PENRO Pampanga

Sheila May Escuto  
SMO Region 3

Marivic Santos  
Manila Bay Focal Person  
PENRO Nueva Ecija

Representative of Forest Management  
Bureau

Serafin Rufo  
PENRO Tarlac

#### **Bataan ICM Program**

Karen June Balbuena  
Staff

Gloria Aberin  
CENRO Tabang, Bulacan

Ellen Tabing  
Staff

Michael Lopez  
LMS

Pinky Dayandante  
Forester  
Planning and Management Division

**Region 4A**

Reynulfo Juan  
Regional Executive Director  
DENR

Arnold Hernandez  
RTD for PAWCZM  
DENR

Domingo Bravo  
Chief, CMMD  
Region 4A, DENR  
Celia Esteban  
SFMS  
MBCO

Melinda Marco  
FMS II  
MBCO

Rej Bungabong  
PO I  
MBCO

Angelique Mei Idlao  
IEC Specialist  
MBCO

Amelia Abecina  
Database Specialist  
MBCO

O'Sonnel Moises Tudla  
Staff  
MBCO

Raymond Amido  
TA II  
MBCO

Maria Katrina Apaya  
TA II  
MBCO

Marlene Paunil  
PO II

PENRO Rizal

Ian Dothery Endangan, Jr  
EMS I  
EMB Region 4A

Corazon Gasapos  
SEMS  
EMB Region 4A

Anna Bella E. Posadas  
PEO I  
PENRO Batangas  
MBCO

**Cavite**

Ana Cayabyab  
Head, ICM Section  
PG-ENRO

Amanette Pulido  
EMS II  
PG-ENRO

Maricris Rodeo  
Administrative Aide I

**Batangas**

Loreta Sollestre  
Head, Planning and ICM  
PG-ENRO

Rochel Amboya  
Staff  
Planning and ICM  
PG-ENRO

**National Capital Region**

Nilo B. Tamoria  
Regional Executive Director  
NCR

Donna Mayor-Cordova  
RTD, PAWCZMS  
NCR

Omar S. Balanag  
MBCO/SMO-NCR

Reina Cueto  
MBCO/SMO-NCR

Marvin Azicate  
SMS  
Research/SMO-NCR

Wilma Uyaco  
OIC, Chief  
Water Quality Management Section  
EMB-NCR

Divine Camaro  
Deputy Chief  
Water Quality Management Section  
EMB-NCR

Christian Claudio  
MIS, EMB-NCR

**Environmental Management Bureau**

Mr. Herbert Narisma  
Chief, MIS  
EMB

## **Guide Questions Used During the Focus Group Discussions**

### **Staff**

1. How many staff assigned? What are the assignments of each staff?
2. What are other responsibilities of staff aside from IIMS?
3. Who does the data screening?
4. Can your office assign a full time staff?
5. What are the issues with regard to staff?

### **Equipment**

1. Are there computers assigned for exclusive use for IIMS?
2. If none, are you planning to purchase one?
3. What are other facilities available (e.g., scanner, printer, Internet access)

### **Data**

1. Are data available in the DENR/provincial government and other offices accessible?
2. Of the data available as indicated in the IIMS checklist, how much have been collected, screened and encoded?
3. How data are screened and classified? How data encoded are validated?
4. How many records are there in each category?
5. Are there issues with regard to data? data sharing?

### **Software**

1. Are there difficulties encountered in the operationalization of the software? What are they?

### **Arrangements with other agencies**

1. Are data holders and users aware of IIMS?
2. What agencies are involved in IIMS?
3. What sorts of arrangements are available to access the data from other agencies?

### Status of Data Encoding

Category	Class	Subclass	Region 3		NCR		Region 4	
			Applicable table	Records encoded	Applicable table	Records encoded	Applicable table	Records encoded
Regional Codes, Data Codes and Geospatial Data	Regions Sites	Regional table						
		IIMS Site table						
		Provinces/ Country	X	5	x	1	x	3
		Ciy and Municipality	X	96	x	17	x	66
		Barangays	X	2388	x	1705	x	1682
	Watershed	Watershed Area	X	9	x	1	x	3
		Sub-watershed	X	31	x	1	x	3
		Land/Water Use/Cover	X	4			x	
		Watershed Boundaries	X	11	x		x	94
	Bodies of Water	Bodies of Water	X	178	x	237	x	79
		Watershed covered	X		x		x	1
	Geospatial Data	Location Segments	X	7	x	3	x	34
		Polygons and Lines	X	13	x	75	x	519
	Maps	Maps	X	1	x		x	
Biological and Bioresource Data	Fish Resources	Fish Species Inventory	x	57	x	8	x	550
	Coral Reef Survey	Reef Survey Inventory					x	1
		Reef Fish Survey					x	
		Coral Species/ Genera Inventory	x	42			x	17
		Coral Species/ Genera Survey data						
	Capture Fisheries Resources	Capture Fisheries Survey Inventory						
		Capture Fisheries Survey Data						
	Aquaculture Resources	Aqua-culture Species Inventory	x		x		x	

Category	Class	Subclass	Region 3		NCR		Region 4	
			Applicable table	Records encoded	Applicable table	Records encoded	Applicable table	Records encoded
		Aquaculture Survey Data	x		x		x	
	Seaweed Resources	Seaweed Inventory	x					
		Seaweed Location						
		Seaweed Survey Data						
	Seagrass Resources	Seagrass Inventory	x				x	
		Seagrass Survey Data						
		Seagrass Location						
	Benthos	Benthos Inventory						
		Benthos Survey Data						
	Zoo-plankton	Zoo-plankton						
		Zoo-plankton Survey Data						
	Phyto-plankton	Phyto-plankton						
		Phyto-plankton Survey Data						
	Wetlands	Wetlands Inventory	x		x	3	x	2
		Wetlands Survey Data	x		x	6	x	1
		Wetlands Flora Inventory	x		x	32	x	47
		Survey Data (Wetlands Flora)	x		x	12	x	
		Wetlands Fauna Inventory	x		x	69		
		Survey Data (Wetlands Fauna)	x		x	71		
	Forestry	Forest Trees Inventory	x	90	x		x	815
		Survey Data (Forest Trees)						2
		Other Flora Inventory	x	156	x	900		1
		Survey Data (Other Flora)			x			
		Fauna Inventory	x	122	x		x	17
		Survey Data (Fauna)			x			

Category	Class	Subclass	Region 3		NCR		Region 4	
			Applicable table	Records encoded	Applicable table	Records encoded	Applicable table	Records encoded
		Survey List of Trees	x				x	
		Survey Location	x				x	2
Social and Economic Data	Fisheries	Fishers Inventory	x	25	x	58	x	
		Commercial Fish Value by Species	x		x			
		Fishing Gear Inventory	x	2	x		x	
		Fishing Vessel/Boat Inventory	x	11	x		x	
		Effort/Value Data by Gear Type			x			
		Seaweed Value by Species					x	
		Effort/Value Data by Boat Type			x			
		Fishing Ports Inventory	x		x		x	
		Commercial Value by Ports	x		x			
	Aquaculture	Aquaculture Site Inventory	x	18	x		x	
		Commercial Value by Type of Farm and Species						
	Agriculture	Agriculture Crop Farm Inventory	x				x	1
		Agriculture Crop Production	x	580			x	
		Poultry and Livestock Farm Inventory	x	924			x	4
		Poultry and Livestock Production	x	115			x	3
	Forest	Forestry Sector Inventory	x					
		Forest Products						
	Mining	Mining & Quarrying Sector Inventory	x	109			x	1
		Mining & Quarrying Sector Production	x				x	

Category	Class	Subclass	Region 3		NCR		Region 4	
			Applicable table	Records encoded	Applicable table	Records encoded	Applicable table	Records encoded
Port	Port	Port Inventory	x	1	x	2	x	
		Cargo Throughput	x		x	12	x	
		Shipping Activity by Cargo	x		x	12	x	
		Shipping Activity Vessel	x		x		x	
		Terminal Inventory			x	24		
		Terminal Import/Export Volumes and Facilities	x		x	15		
		Port Reception Facilities Profile	x					
Industries	Industries	Manufacturing Sector Inventory	x	671	x	8412	x	1445
		Manufacturing Sector Production	x		x	141	x	49
Tourism	Tourism	Tourism Inventory	x	234	x	9	x	
		Tourist Volume and Revenues	x			9	x	
		Tourist Profile	x		x	9	x	
Commercial/ Institutional	Commercial/ Institutional	Commercial Establishment Inventory	x	1050	x		x	21
		Major Institution Inventory	x		x	2	x	7
Utilities	Utilities	Potable Water Supply	x					
		Domestic Sewage			x		x	
		Municipal Wastewater Collection System						
		Municipal Wastewater Treatment and Disposal Facilities						
		Municipal Sludge Collection System						
Reclamation	Reclamation	Reclamation Project	x	3	x	6	x	

Category	Class	Subclass	Region 3		NCR		Region 4	
			Applicable table	Records encoded	Applicable table	Records encoded	Applicable table	Records encoded
		Reclamation Project (Purpose)	x			6	x	
		Reclamation Project (Municipalities/Cities Covered)	x			6	x	
Demo-graphic Data	Population	Census	x	2490	x	1753	x	1712
		Employment	x				x	
		Employment by Education						
		Income	x				x	
		Poverty	x		x		x	
		Education	x	3	x	272	x	
		Waterborne Diseases	x	1	x	76	x	
		Religion	x	17	x	26	x	
		Vital Statistics	x	48			x	
Malnutrition	x	53	x		x			
Governance Data	Government	Basic Information	x		x	1	x	1
		Government Agency	x		x	23	x	12
		Government Agency (Project)	x		x		x	1
		Government Agency (Project-Area Covered)	x		x		x	9
		Government Agency (Resources - Personnel)	x		x		x	1
		Government Agency (Resources - Budget)	x		x		x	1
		Government Agency (Resources - Equipment)	x		x		x	
		Government Agency (Legislation)	x		x	35	x	1
		Government Agency (Enforcement)	x		x		x	

Category	Class	Subclass	Region 3		NCR		Region 4	
			Applicable table	Records encoded	Applicable table	Records encoded	Applicable table	Records encoded
		Government Agency (Enforcement-Permit Issuance)	x		x		x	
		Government Agency (Enforcement-Compliance/Monitoring)	x		x		x	
		Government Agency (Enforcement-Monitoring Team)	x				x	
		Government Agency (Enforcement-Violations)	x				x	
		Government Agency (Capacity Building-Training Institution)	x		x		x	
		Government Agency (Capacity Building- Expert)	x		x		x	
		Government Agency (Capacity Building-Expertise)	x		x		x	
		Government Agency (Capacity Building-Training Program)	x		x		x	
		Government Agency (Capacity Building- Sub-topic)	x		x		x	
		Government Agency (Research or Studies)	x		x		x	
		Government Agency (Research/ Studies - Area Covered)	x		x		x	

Category	Class	Subclass	Region 3		NCR		Region 4	
			Applicable table	Records encoded	Applicable table	Records encoded	Applicable table	Records encoded
		Government Agency (Research/ Studies - Components)	x		x		x	
		Government Agency (Oil Spill - Capacity)	x				x	
		Government Agency (Response Organization)	x		x		x	
		Government Agency (Stockpile of Equipment)	x		x		x	
		Government Agency (Primary Oil Spill)	x		x		x	
		Government Agency (Auxillary)	x		x		x	
		Government Agency (Support)	x		x		x	
		Government Agency (Waste Handling)	x		x		x	
		Government Agency (Information/ Communication - Others)	x		x		x	
		Coordinating Mechanism	x		x		x	1
		Coordinating Mechanism (Legal Basis)	x		x		x	1
		Coordinating Mechanism (Member Organizations)	x		x		x	1
		Coordinating Mechanism (Sub-group Organizations)	x		x		x	
		Coordinating Mechanism (Sub-group Members)	x		x		x	
		Coordinating Mechanism (Resources)	x		x		x	

Category	Class	Subclass	Region 3		NCR		Region 4	
			Applicable table	Records encoded	Applicable table	Records encoded	Applicable table	Records encoded
		Coordinating Mechanism (Finance)	x		x		x	
		Coordinating Mechanism (Issues Resolved)	x		x		x	
	Plans	Plans	x		x		x	1
		Plan (River Basin)	x		x		x	
		Plan (Municipalities Covered)	x		x		x	
		Plan (Issues Addressed)	x		x		x	
		Plan (Purpose)	x		x		x	
		Plan (Body Adapting the Plan)	x		x		x	
		Plan (Components)	x		x		x	
		Plan (Responsible Agencies/Stakeholders)	x		x		x	
		Plan (Monitoring)	x		x		x	
		Plan (Updating)	x		x		x	
		Plan (Target Audience)	x				x	
		Plan (Communication Activities)	x		x		x	
		Plan (Response Organization)	x		x		x	
		Plan (Response Organization - Equipments)	x		x		x	
		Plan (Evacuation Centers)	x		x		x	
		Plan (Early Warning Systems)	x		x		x	
	Sectors	Sector	x	43	x		x	
		Members	x		x		x	
		Activities	x		x		x	
		Expenses	x		x		x	

Category	Class	Subclass	Region 3		NCR		Region 4	
			Applicable table	Records encoded	Applicable table	Records encoded	Applicable table	Records encoded
Pollution Sources Data	Land-based Sources	Industry Inventory	x	112	x	271	x	1446
		Industry Pollution Profile	x	1759	x	2288	x	1250
		Industry (Level of Treatment)	x		x		x	
		Hazardous Wastes	x	2			x	57
		Waste Information	x	1			x	122
		Municipal Wastewater Discharge Inventory	x		x	7	x	23
		Municipal Wastewater Pollution Profile	x		x	151	x	2
		Municipal Wastewater (Level of Treatment)	x		x			
		Sludge Treatment & Disposal System					x	11
		Solid Waste	x		x		x	48
		Agricultural / Animal Waste						
		Dumpsite Inventory	x	1	x		x	105
	Water-based Sources	Oil Type	x		x		x	
		Oil Spills	x		x		x	1
		Chemical Spills						
Chemical Spill Type								
Offshore Exploration								
Water Resources	Infrastructure	Water Resources Infrastructure	x	137	x		x	
		Service Area	x				x	
	Water Supply and Sanitation	Water Distributor	x		x		x	
		Water Distributor (Service Area)	x		x			
		Water User / Permittees	x		x		x	
Water Supply Facilities	x		x					

Category	Class	Subclass	Region 3		NCR		Region 4	
			Applicable table	Records encoded	Applicable table	Records encoded	Applicable table	Records encoded
		Water Supply Facilities (Service Area)			x		x	
		Water Supply Projects						
		Water Sanitation Projects	x		x		x	
		Water Supply						
		Water Demand (Subwatershed)						
		Water Sources	x				x	
Environment Quality	Water Quality Data	Monitoring Station Inventory	x		x	53	x	44
		Monitoring Station Observation Times	x		x	1407	x	383
		Physico-chemical	x		x	1407	x	383
		Metals	x		x	1390		
		Organic Compounds						
		Algal Bloom						
		Criteria/Standard (physico-chemical)	x		x	9	x	1
		Criteria/Standard (metals)	x		x	9	x	
		Criteria/Standard (organics)			x	8	x	
	Sediment Quality Data	Monitoring Station Inventory	x				x	
		Monitoring Station Observation Times	x				x	
		Metals	x				x	
		Organic Compounds						
		Coliform						
Criteria/Standard (metals)		x				x		

Category	Class	Subclass	Region 3		NCR		Region 4	
			Applicable table	Records encoded	Applicable table	Records encoded	Applicable table	Records encoded
		Criteria/ Standard (organics)	x				x	
	Ground Water	Monitoring Station Inventory	x				x	
		Monitoring Station Observation Times	x				x	
		Water Quality Data	x				x	
		Metals	x				x	
		Organic Compounds						
		Criteria/ Standard (parameters)	x				x	
		Criteria/ Standard (metals)	x				x	
		Criteria/ Standard (organics)	x				x	
	Tissue Analysis	Monitoring Station Inventory						
		Monitoring Station Observation Times						
		Metals						
		Organic Compounds						
		Coliform						
		Metals Criteria/ Standard (1-10 yr old)						
		Metals Criteria/ Standard (Adult)						
		Metals Criteria/ Standard (Pregnant)						
		Organic Criteria/ Standard (1-10 yr old)						
		Organic Criteria/ Standard (Adult)						
		Organic Criteria/ Standard (Pregnant)						

Category	Class	Subclass	Region 3		NCR		Region 4	
			Applicable table	Records encoded	Applicable table	Records encoded	Applicable table	Records encoded
	Air Quality Data	Airshed	x		x		x	8
		Municipalities/ Cities Covered	x		x		x	6
		Air Quality Station	x		x		x	49
		Observation	x		x		x	156
		Air Pollutants	x		x		x	156
		Criteria/ Standard (parameter)	x		x		x	
Physiographic Data	Oceanographic Data	Tidal Monitoring Station Inventory	x		x		x	
		Tidal Summary Data	x		x		x	
		Astronomical Harmonic Constants						
		Digital Bathymetry						
		CTD Monitoring Station Inventory						
		CTD Survey Data						
	Hydro-meteorological Data	Streamflow Gauging Station Inventory	x				x	
		Streamflow Summary Data	x				x	
		Meteorological Station	x		x		x	
		Rainfall	x		x		x	
		Evaporation	x		x		x	
		Evapo-transpiration						
		Humidity	x		x		x	
		Wind Velocity	x		x		x	
		Sunshine Duration	x				x	
	Air Temperature	x		x		x		
	Geological Data	Surficial Sediment Survey Inventory						
		Surficial Sediment Classification Data						

Category	Class	Subclass	Region 3		NCR		Region 4	
			Applicable table	Records encoded	Applicable table	Records encoded	Applicable table	Records encoded
		Sediment Grain Size Survey Inventory						
		Sediment Grain Size Survey Data						
	Pedology	Soil Data	x				x	
		Soil Data (Soil Type)	x				x	
		Infiltration Rate						
		Percolation Rate						
	Surface Runoff	x				x		
Natural and Human-made Hazards	Hazards	Hazards Data	x				x	
		Hazards (Municipalities/Cities Covered)	x				x	
		Hazards (Ecosystem Affected)	x				x	
		Hazards (Species Affected)	x				x	
		Hazard Prone Areas	x				x	
Natural and Cultural Heritage	Natural Heritage	Natural Heritage	x	37	x		x	2
		Natural Heritage (Habitat)	x		x		x	1
		Natural Heritage (Area Conserved)			x		x	
		Natural Heritage (Municipality Covered)	x	20	x		x	2
		Natural Heritage (Environmental Issues)	x		x		x	
		Natural Heritage (Socioeconomic Issues)	x		x		x	
		Natural Heritage (Coordinating Mechanism)	x		x		x	
		Natural Heritage (Legislation)	x		x		x	
		Natural Heritage (Management Plan)	x		x		x	
		Cultural Heritage	Cultural Heritage	x	130	x		x
	Cultural Heritage (Municipality)		x	56	x		x	

Category	Class	Subclass	Region 3		NCR		Region 4	
			Applicable table	Records encoded	Applicable table	Records encoded	Applicable table	Records encoded
		Covered)						
		Cultural Heritage (Environmental Issues)						
		Cultural Heritage (Socio-Economic Issues)						
		Cultural Heritage (Coordinating Mechanism)	x		x		x	
		Cultural Heritage (Legislation)	x		x		x	
		Cultural Heritage (Management Plan)	x				x	
		Cultural Heritage (Management Intervention)	x		x		x	
Total no. of tables			215	46	171	49	202	63
Total no. of records				11863		21050		11468
Percent encoded (applicable table/tables with records)				21.39		28.65		29.30

Category	Class	Subclass	Bataan		Cavite		Batangas	
			Applicable table	Records encoded	Applicable table	Records encoded	Applicable table	Records encoded
Regional Codes, Data Codes and Geospatial Data	Regions Sites	Regional table						
		IIMS Site						
		Provinces/ Country	x	1	x	1	x	1
		City and Municipality	x	12	x	16	x	14
		Barangays	x	237	x	550	x	533
	Watershed	Watershed Area	x		x	3	x	5
		Sub-watershed	x		x		x	5
		Land/Water Use/Cover	x		x		x	
		Watershed Boundaries	x		x		x	
	Bodies of Water	Bodies of Water	x	73	x	25	x	
		Watershed covered	x		x			
	Geospatial Data	Location Segments			x	5	x	2
		Polygons and Lines			x	5	x	2
	Maps	Maps						
Biological and Bioresource Data	Fish Resources	Fish Species Inventory	x	137	x	28	x	69
	Coral Reef Survey	Reef Survey Inventory	x	8				
		Reef Fish Survey						
		Coral Species/ Genera Inventory	x				x	
		Coral Species/ Genera Survey data	x	66				
	Capture Fisheries Resources	Capture Fisheries Survey Inventory						
		Capture Fisheries Survey Data						
	Aquaculture Resources	Aqua-culture Species Inventory	x	9	x		x	
Aquaculture Survey Data		x		x		x		

Category	Class	Subclass	Bataan		Cavite		Batangas	
			Applicable table	Records encoded	Applicable table	Records encoded	Applicable table	Records encoded
Seaweed Resources	Seaweed	Inventory	x		x		x	6
		Location	x					
		Survey Data	x					
Seagrass Resources	Seagrass	Inventory	x				x	4
		Survey Data	x					
		Location						
Benthos	Benthos	Inventory						
		Survey Data						
Zooplankton	Zooplankton		x	49				
		Survey Data						
Phyto-plankton	Phyto-plankton		x	44				
		Survey Data						
Wetlands	Wetlands	Inventory	x	11	x		x	
		Survey Data	x		x		x	
		Flora Inventory	x		x		x	3
		Survey Data (Wetlands Flora)			x		x	
		Wetlands Fauna Inventory	x					
		Survey Data (Wetlands Fauna)						
Forestry	Forestry	Forest Trees Inventory	x	39	x		x	
		Survey Data (Forest Trees)	x		x		x	
		Other Flora Inventory			x		x	
		Survey Data (Other Flora)					x	
		Fauna Inventory						
		Survey Data (Fauna)						

Category	Class	Subclass	Bataan		Cavite		Batangas	
			Applicable table	Records encoded	Applicable table	Records encoded	Applicable table	Records encoded
		Survey List of Trees	x		x			
		Survey Location	x		x			
Social and Economic Data	Fisheries	Fishers Inventory			x	3	x	
		Commercial Fish Value by Species			x	20	x	
		Fishing Gear Inventory			x	2	x	
		Fishing Vessel/Boat Inventory	x		x	7	x	
		Effort/Value Data by Gear Type			x		x	
		Seaweed Value by Species			x			
		Effort/Value Data by Boat Type			x			
		Fishing Ports Inventory	x		x			
		Commercial Value by Ports			x			
	Aquaculture	Aquaculture Site Inventory	x	92	x		x	
		Commercial Value by Type of Farm and Species	x		x		x	
	Agriculture	Agriculture Crop Farm Inventory	x		x	4	x	
		Agriculture Crop Production	x		x	112	x	127
		Poultry and Livestock Farm Inventory	x		x		x	
		Poultry and Livestock Production	x		x	46	x	237
	Forest	Forestry Sector Inventory						
		Forest Products						

Category	Class	Subclass	Bataan		Cavite		Batangas	
			Applicable table	Records encoded	Applicable table	Records encoded	Applicable table	Records encoded
Mining	Mining & Quarrying Sector	Inventory	x	37	x		x	
		Production	x		x		x	
Port	Port	Inventory	x	16			x	35
		Cargo Throughput	x				x	39
		Shipping Activity by Cargo	x				x	
		Shipping Activity Vessel					x	
		Terminal Inventory						
		Terminal Import/Export Volumes and Facilities						
		Port Reception Facilities Profile						
Industries	Manufacturing Sector	Inventory	x		x	128	x	62
		Production	x		x	2	x	
Tourism	Tourism	Inventory	x	71	x	61	x	25
		Tourist Volume and Revenues	x		x	2	x	
		Tourist Profile						
Commercial/Institutional	Commercial Establishment	Inventory	x	185	x	6	x	13
		Major Institution Inventory	x		x		x	3
Utilities	Utilities	Potable Water Supply	x	3	x		x	2
		Domestic Sewage	x		x		x	
		Municipal Wastewater Collection						

Category	Class	Subclass	Bataan		Cavite		Batangas	
			Applicable table	Records encoded	Applicable table	Records encoded	Applicable table	Records encoded
		System						
		Municipal Wastewater Treatment and Disposal Facilities						
		Municipal Sludge Collection System						
	Reclamation	Reclamation Project	x		x			
		Reclamation Project (Purpose)	x		x			
		Reclamation Project (Municipality/ City Covered)	x		x			
Demographic Data	Population	Census	x		x	183	x	253
		Employment					x	15
		Employment by Education				4		
		Income						
		Poverty	x		x	1	x	10
		Education	x		x	3	x	15
		Waterborne Diseases	x		x	153	x	169
		Religion	x		x	9	x	
		Vital Statistics	x		x	1	x	2
		Malnutrition	x		x	1	x	14
Governance Data	Government	Basic Information	x		x		x	
		Government Agency	x		x		x	85
		Government Agency (Project)	x		x		x	3
		Government Agency (Project-Area Covered)	x		x		x	3
		Government Agency (Resources - Personnel)	x		x		x	
		Government Agency (Resources -	x		x		x	

Category	Class	Subclass	Bataan		Cavite		Batangas	
			Applicable table	Records encoded	Applicable table	Records encoded	Applicable table	Records encoded
		Budget)						
		Government Agency (Resources - Equipment)	x		x		x	
		Government Agency (Legislation)	x		x		x	
		Government Agency (Enforcement)	x		x		x	
		Government Agency (Enforcement -Permit Issuance)	x		x		x	
		Government Agency (Enforcement Compliance/ Monitoring)	x		x		x	
		Government Agency (Enforcement - Monitoring Team)	x		x		x	
		Government Agency (Enforcement - Violations)	x		x		x	
		Government Agency (Capacity Building- Training Institution)	x		x		x	
		Government Agency (Capacity Building- Expert)	x		x		x	
		Government Agency (Capacity Building- Expertise)	x		x		x	
		Government Agency (Capacity Building- Training Program)	x		x		x	

Category	Class	Subclass	Bataan		Cavite		Batangas	
			Applicable table	Records encoded	Applicable table	Records encoded	Applicable table	Records encoded
		Government Agency (Capacity Building- Sub-topic)	x		x		x	
		Government Agency (Research or Studies)	x		x		x	
		Government Agency (Research/ Studies - Area Covered)	x		x		x	
		Government Agency (Research/ Studies - Components)	x		x		x	
		Government Agency (Oil Spill - Capacity)	x		x		x	
		Government Agency (Response Organization)	x		x		x	
		Government Agency (Stockpile of Equipment)	x		x		x	
		Government Agency (Primary Oil Spill)	x		x		x	
		Government Agency (Auxillary)	x		x		x	
		Government Agency (Support)	x		x		x	
		Government Agency (Waste Handling)	x		x		x	
		Government Agency (Information/ Communication - Others)	x		x		x	
		Coordinating Mechanism	x		x		x	

Category	Class	Subclass	Bataan		Cavite		Batangas	
			Applicable table	Records encoded	Applicable table	Records encoded	Applicable table	Records encoded
		Coordinating Mechanism (Legal Basis)	x		x		x	
		Coordinating Mechanism (Member Organizations )	x		x		x	
		Coordinating Mechanism (Sub-group Organizations)	x		x		x	
		Coordinating Mechanism (Sub-group Members)	x		x		x	
		Coordinating Mechanism (Resources)	x		x		x	
		Coordinating Mechanism (Finance)	x		x		x	
		Coordinating Mechanism (Issues Resolved)	x		x		x	
	Plans	Plans	x		x	2	x	10
		Plan (River Basin)	x		x		x	
		Plan (Municipality Covered)	x		x		x	
		Plan (Issues Addressed)	x		x		x	
		Plan (Purpose)	x		x		x	
		Plan (Body Adapting the Plan)	x		x		x	
		Plan (Components)	x		x		x	
		Plan (Responsible Agencies/ Stakeholders)	x		x		x	
		Plan (Monitoring)	x		x		x	
		Plan (Updating)	x		x		x	
		Plan (Target Audience)	x		x		x	

Category	Class	Subclass	Bataan		Cavite		Batangas	
			Applicable table	Records encoded	Applicable table	Records encoded	Applicable table	Records encoded
		Plan (Communication Activities)	x		x		x	
		Plan (Response Organization)	x		x		x	
		Plan (Response Organization - Equipments)	x		x		x	
		Plan (Evacuation Centers)	x		x		x	
		Plan (Early Warning Systems)	x		x		x	
		Sectors	Sector	x		x		x
	Members	x		x		x		
	Activities	x		x		x	22	
	Expenses	x		x		x		
	Pollution Sources Data	Land-based Sources	Industry Inventory					
Industry Pollution Profile								
Industry (Level of Treatment)								
Hazardous Wastes								
Waste Information								
Municipal Wastewater Discharge Inventory								
Municipal Wastewater Pollution Profile								
Municipal Wastewater (Level of Treatment)								
Sludge Treatment & Disposal System								
Solid Waste			x		x		x	
Agricultural / Animal Waste								

Category	Class	Subclass	Bataan		Cavite		Batangas	
			Applicable table	Records encoded	Applicable table	Records encoded	Applicable table	Records encoded
	Water-based Sources	Dumpsite Inventory	x		x		x	
		Oil Type	x			3	x	
		Oil Spills	x			3	x	
		Chemical Spills						
		Chemical Spill Type						
		Offshore Exploration						
Water Resources	Infrastructure	Water Resources Infrastructure	x		x			
		Service Area	x		x			
	Water Supply and Sanitation	Water Distributor	x		x	4		
		Water Distributor (Service Area)	x		x		x	
		Water User / Permittees	x		x	3	x	
		Water Supply Facilities						
		Water Supply Facilities (Service Area)						
		Water Supply Projects				1		
		Water Sanitation Projects						
		Water Supply						
		Water Demand (Sub-watershed)						
		Water Sources						
		Environment Quality	Water Quality Data	Monitoring Station Inventory				6
Monitoring Station Observation Times						2	x	23
Physico-chemical Metals						2	x	86
Organic Compounds							x	57
Algal Bloom	x							

Category	Class	Subclass	Bataan		Cavite		Batangas	
			Applicable table	Records encoded	Applicable table	Records encoded	Applicable table	Records encoded
		Criteria/Standard (physico-chemical)					x	1
		Criteria/Standard (metals)					x	
		Criteria/Standard (organics)						
	Sediment Quality Data	Monitoring Station Inventory						
		Monitoring Station Observation Times						
		Metals						
		Organic Compounds						
		Coliforms						
		Criteria/Standard (metals)						
		Criteria/Standard (organics)						
	Ground Water	Monitoring Station Inventory						
		Monitoring Station Observation Times						
		Water Quality Data						
		Metals						
		Organic Compounds						
		Criteria/Standard (parameters)						
		Criteria/Standard (metals)						
		Criteria/Standard (organics)						
	Tissue Analysis	Monitoring Station Inventory						
		Monitoring Station						

Category	Class	Subclass	Bataan		Cavite		Batangas	
			Applicable table	Records encoded	Applicable table	Records encoded	Applicable table	Records encoded
		Observation Times						
		Metals						
		Organic Compounds						
		Coliforms						
		Metals Criteria/ Standard (1-10 yr old)						
		Metals Criteria/ Standard (Adult)						
		Metals Criteria/ Standard (Pregnant)						
		Organic Criteria/ Standard (1-10 yr old)						
		Organic Criteria/ Standard (Adult)						
		Organic Criteria/ Standard (Pregnant)						
	Air Quality Data	Airshed						
		Municipality/ City Covered						
		Air Quality Station						
		Observation						
		Air Pollutants						
		Criteria/ Standard (parameter)						
Physiographic Data	Oceanographic Data	Tidal Monitoring Station Inventory				1		
		Tidal Summary Data						
		Astronomical Harmonic Constants						

Category	Class	Subclass	Bataan		Cavite		Batangas	
			Applicable table	Records encoded	Applicable table	Records encoded	Applicable table	Records encoded
		Digital Bathymetry						
		CTD Monitoring Station Inventory						
		CTD Survey Data						
	Hydro-meteorological Data	Streamflow Gauging Station Inventory	x		x	4		
		Streamflow Summary Data	x		x	4		
		Meteorological Station						
		Rainfall						
		Evaporation						
		Evapotranspiration						
		Humidity						
		Wind Velocity						
		Sunshine Duration						
		Air Temperature						
	Geological Data	Surficial Sediment Survey Inventory						
		Surficial Sediment Classification Data						
		Sediment Grain Size Survey Inventory						
		Sediment Grain Size Survey Data						
	Pedology	Soil Data	x					
		Soil Data (Soil Type)	x					
		Infiltration Rate						
		Percolation Rate						
		Surface Runoff						

Category	Class	Subclass	Bataan		Cavite		Batangas	
			Applicable table	Records encoded	Applicable table	Records encoded	Applicable table	Records encoded
Natural and Human-made Hazards	Hazards	Hazards Data	x		x		x	
		Hazards (Municipalities/Cities Covered)	x		x		x	
		Hazards (Ecosystem Affected)			x		x	
		Hazards (Species Affected)			x		x	
		Hazard Prone Areas	x		x		x	
Natural and Cultural Heritage	Natural Heritage	Natural Heritage	x		x		x	
		Natural Heritage (Habitat)	x		x		x	
		Natural Heritage (Area Conserved)					x	
		Natural Heritage (Municipality Covered)	x		x		x	
		Natural Heritage (Environmental Issues)			x		x	
		Natural Heritage (SocioEconomics Issues)					x	
		Natural Heritage (Coordinating Mechanism)			x		x	
		Natural Heritage (Legislation)			x		x	
		Natural Heritage (Management Plan)			x		x	
	Cultural Heritage	Cultural Heritage	x		x		x	
		Cultural Heritage (Municipality Covered)	x		x		x	

Category	Class	Subclass	Bataan		Cavite		Batangas	
			Applicable table	Records encoded	Applicable table	Records encoded	Applicable table	Records encoded
		Cultural Heritage (Environmental Issues)						
		Cultural Heritage (Socio-economic Issues)						
		Cultural Heritage (Coordinating Mechanism)			x		x	
		Cultural Heritage (Legislation)			x		x	
		Cultural Heritage (Management Plan)			x		x	
		Cultural Heritage (Management Intervention)			x		x	
Total no. of tables			142	20	143	39	150	40
Total records				1090		1416		2006
Percent encoded (applicable table/tables with records)				14.08		27.27		26.67

**Proposed Work Plan and Budget on the IIMS support for the GNC**

	<b>Activities</b>	<b>Date</b>	<b>No. of days</b>	<b>Budget (Pesos)</b>
1	<b>Updating the dropdown menu</b>	Aug 6-9		
	Industry classification			
	Others (types of hazards, solid waste, etc)			
	Input:			
	IIMS specialist/consultant		3	30,000
2	<b>Preparation for the integration workshop 1</b>	Aug 6-10		
	Determining venue and finalization of arrangements			
	Inviting participants			
	Preparing workshop kit			
	Program and schedule of activities			
	Integration guide			
	IIMS software			
	Inputs:			
	Communication			3,000
	Materials			5,000
	Staff time			
	IIMS specialist/consultant		0.5	5,000
3	<b>Conduct of integration workshop</b>	Aug 13-15	3	
	Inputs:			
	Transportation			10,000
	Venue			100,000
	Staff time			
	IIMS specialist/consultant		3	30,000
	Audio-visual equipment, computers			
4	<b>Preparation of workshop report</b>	Aug 16		
	Inputs:			
	Materials (included in item 2)			
5	<b>Integration workshop 2</b>			
	Setting up the IIMS server	Aug 17	0.5	
	Inputs:			
	IT support		0.5	
	IIMS specialist		0.5	5,000
	Workshop			
	NCR	Aug 21	1	
	Region 3 and Bataan	Aug 22	1	

	<b>Activities</b>	<b>Date</b>	<b>No. of days</b>	<b>Budget (Pesos)</b>
	Region 4A and Cavite	Aug 23	1	
	Inputs:			
	IIMS specialist/consultant		1.5	15,000
	Transportation allowance/mealse for participants			5,000
	Materials			1,000
6	<b>Accessing Manila Bay data</b>	Aug 27-Sept 7		
	Inputs:			
	Staff time			
7	<b>Meeting with concerned national agencies</b>	Aug 27-Sept 7		
	Inputs:			
	Staff time			
	IIMS specialist/consultant		1	10,000
8	<b>Encoding priority data and generating reports for GNC</b>	To be determined		
	Recruitment of encoders/researchers			
	Training of encoders/researchers			
	Classifying and encoding the census data			
	Classifying and encoding data from Manila Bay/national agencies			
	Inputs:			
	Staff time			
	Computer			
	Encoders/Researchers			
	IIMS specialist/consultant (train/supervise encoders, screen and classify data, generate reports)			
	<b>Total</b>			<b>219,000</b>